THE NAVAL SAFETY CENTER'S AVIATION MAGAZINE

approach

November 2002

NATOPS Doesn't Cover This

The *Most Valuable* Flight

Sonobuoys— Friend *or* Foe?

approach

The Naval Safety Center's Aviation Magazine

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Mission Statement

Mishaps waste our time and resources. They take our Sailors, Marines and civilian employees away from their units and workplaces and put them in hospitals, wheelchairs and coffins. Mishaps ruin equipment and weapons. They diminish our readiness.

This magazine's goal is to help make sure that personnel can devote their time and energy to the mission, and that any losses are due to enemy action, not to our own errors, shortcuts or failure to manage risk.

We believe there is only one way to do any task: the way that follows the rules and takes precautions against hazards. Combat is hazardous enough; the time to learn to do a job right is before combat starts.

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Thanks for helping with this issue...

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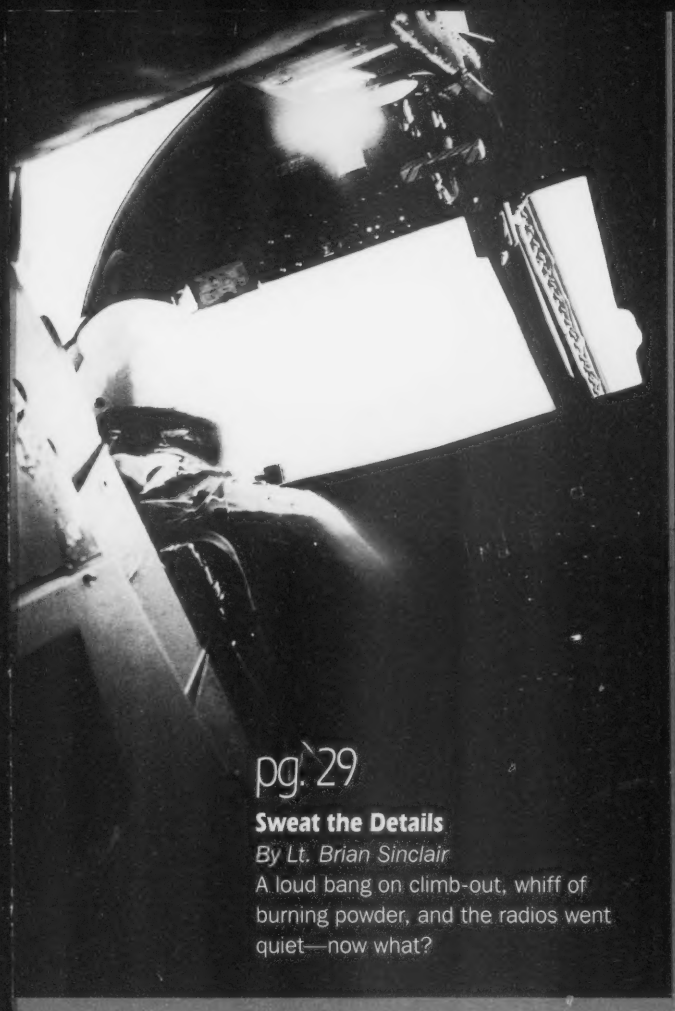

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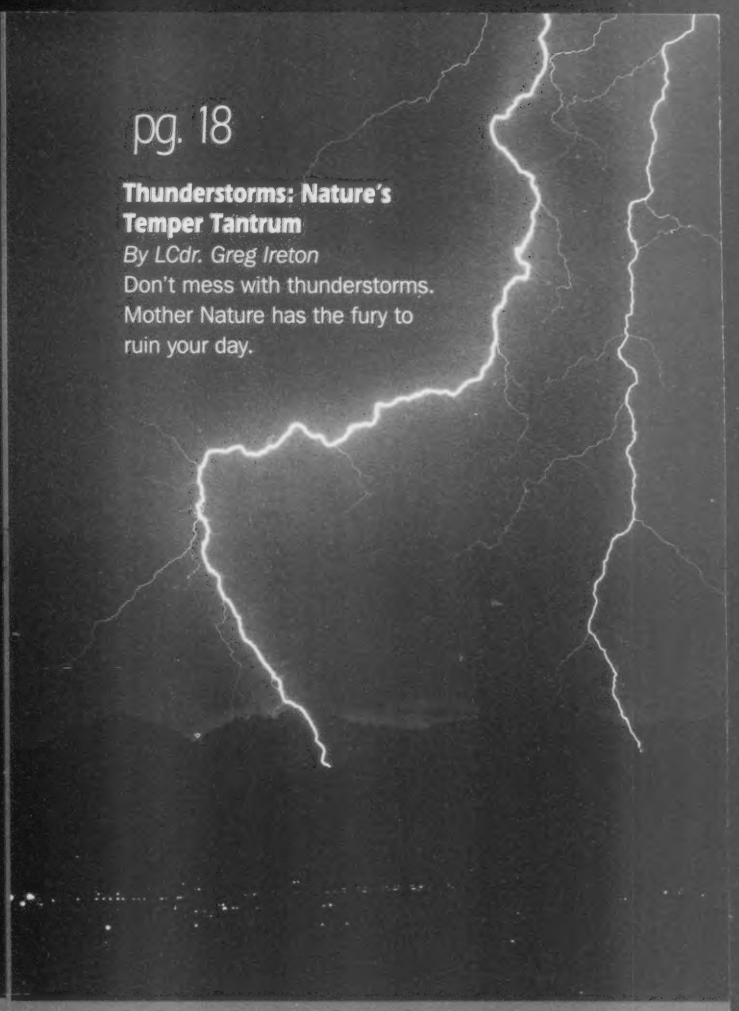

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The Loosest Slots in Town

By LCdr. Jerry Stokes

We were recalled early from an uneventful AEW mission. As CATCC vectored us for descent to a night approach, we ticked off the approach checks. Juggling the checklists and dumping fuel, we kept in step with the Hummer dance as several cloud layers disappeared above us in darkness. We weren't sure if we could squeeze off the gas in time, so we slowed through gear speed to dirty-up at six miles.

The gear and flap indicator came alive. I covered the gear-handle light with my hand, then watched the wheel symbols appear like slot-machine fruit in the gauge. I glanced at the altimeter to back up the pilot, then looked at the gear indicator, expecting the Goodyear jackpot. Instead, the right main gear remained barber-poled, while the eerie red glow of the gear handle continued to light the cockpit. I waited another second and looked again at the gauge, then to the AOA indexers, which were dark. The gear-handle light continued to burn brightly. The pilot secured the fuel dumps slightly above max trap, as I advised approach we had a gear malfunction and requested a rep.

The aircraft had a long history of barber-poled indications with the right main gear and had been drop-checked several times over the previous

months. Each successive drop-check involved increasingly intense searches for causes. Findings included worn wires, slightly misaligned switches, and bent contacts. These problems quickly were repaired. Drop-checks were completed, and the discrepancy was signed off each time.

I had had a right main barber-pole in the aircraft on the beach a few weeks earlier. I checked the hydraulic pressure and the gear and flap gauge, applied positive and negative acceleration, and tried to yaw the aircraft—still with no down indication. I even cycled the landing gear. On that occasion, the gear went up and locked, then came down with a good down-and-locked indication. I talked with other pilots in the squadron who had the same experience with the aircraft, and, in every instance, cycling the gear provided a positive down-and-locked indication.

We continued upwind in the darkness, checking hydraulic pressures and the gear-indicator gauge, as the CICO pulled up dirty-bingo numbers to the beach—160 miles to the west. Our rep came up as the pilot began to apply G and yaw to the aircraft. Horsing the aircraft around on downwind, however, failed to clear the barber-pole. We agreed with the rep to cycle the gear handle.

Fully expecting the gear indication to clear itself, I stared in disbelief as the pilot raised the gear handle. The gear-handle light remained bright red, and the gear indicator continued to show left main and nosegear down-and-locked with a barber-pole on the right main. The CICO confirmed the right main still appeared down-and-locked, and the pilot saw the left main still reflecting the anti-collision strobe. I reached over and gave the gear handle a forceful shove to make sure it was up all the way. The warm fuzzy feeling that I was dealing with a familiar problem began to vanish. In every previous incident, I had suspected a switch or indicator problem. Now, I wondered about some kind of structural or mechanical problem.

After again consulting the PCL, we reasoned the ultimate goal was to get three gear down-and-locked. Lowering the gear handle again would get us closer to that goal, and it couldn't make matters any worse. After lowering the gear handle, the red light continued to burn, the indexers remained dark, and the gear gauge continued to indicate down for the left and nose gear and barber-pole for the right main.

The CICO reported the right main-gear assembly seemed to move slightly toward the typical down-and-locked alignment. We looked at our fuel and now were within 500 pounds of our calculated dirty-bingo state. The acceleration and G application with the gear down had eaten into our reserve faster than we anticipated. We referenced the PCL and then accelerated to provide additional airflow to force the right main gear, while the pilot actuated the blow-down handle on the emergency gear—nothing happened. The CICO reported no change in gear-linkage geometry, and our indications remained the same in the cockpit.

I advised the rep of our negative results and flipped to the emergency-action matrix for the landing gear to prepare for a "One Main Gear Unsafe or Up" landing. Since we had a suitable divert field with arresting gear, and I wanted to forgo any possibility of a gear strut collapsing during rollout on the CV, I advised approach I was within five minutes of bingo fuel. I also said we were climbing toward the divert. I discussed our intentions with the rep, and the CICO alerted the divert field we were inbound for an arrested landing.

The warm fuzzy feeling that I was dealing with a familiar problem began to vanish.

I read aloud the procedures outlined in the PCL as we climbed into a 40-knot headwind. We already had dumped or burned as much gas as possible to reduce our weight. The hook was down, and we were en route to a field arrestment.

The major topic of discussion was whether to secure the right engine before landing. My first response was a definite "yes." Normally, I would have considered the possibility of engine failure very remote, but our squadron had experienced two non-mitigated, first-stage-compressor failures the previous month. I had aborted a CQ mission two weeks earlier when my left engine gave up the ghost. The question we posed was, "Which is the smaller risk: collapsing the right landing gear and inflicting severe FOD damage from a spinning prop, or losing the left non-mitigated engine after shutting down the right engine for approach?"

I asked for inputs from each crew member, as we coordinated with the divert field and completed a front-seat swap. We decided that, given the indications, the risk of the main gear collapsing was greater than the left engine turbine failing during the final few moments of our approach. I elected to secure the right engine on short final, just before the arrestment.

The copilot asked for intentions if we missed the wire. We briefed an aborted-takeoff scenario for a single engine to remain on the runway. If the gear withstood the touchdown, it should hold for the rollout. I didn't want to load it and then go around for a second touchdown.

As the lights of the city broke through the low cloud layers, we maneuvered to intercept a five-mile final. At three miles, I adjusted the power levers and asked the copilot to secure the right engine. The 12,000-foot runway had a significant upslope for the first 3,000 feet, then fell off into a downward slope. The VASI indicated we were way above glide slope. I reduced power to increase the descent rate, as we scanned the haze for arresting-gear markers. We had referenced the IFR Supplement and knew the gear was 2,000 feet from the approach end, and we wanted to touch down just before the gear to avoid a lengthy rollout.

The problem was that the camel-like, 12,000-foot runway appeared very different from the flat 8,000-foot runway we were used to seeing. We tried to estimate 2,000 feet based on total runway presentation but couldn't break out any distinguishing arresting-gear markers. At a half-mile, we saw a set of white lights that looked slightly out of alignment with the runway-remaining markers. A second later, it became obvious the lights were arresting-gear markers. I wondered if we would get down in time, as I balanced the need to increase our descent rate with the need to touch down lightly. We settled into ground effect a few hundred feet before the gear, and I cushioned the landing with a bit of power.

We felt the tug of the arresting gear a split second after touchdown. The right main gear held, and we wallowed to a stop. The gear indicator still showed a barber-pole for the right main. Basking in the lights of six Air Force crash trucks, we asked tower if the CICO could exit the aircraft and pin the right main. As the CICO applied the right main-gear lock, the gear indicator changed to down-and-locked. The CICO returned, we cleared the wire, and taxied off the active runway.

We learned several things that night. We defined the point at which our malfunction turned from a nuisance to a safety-of-flight degradation that required emergency action. As soon as the gear failed to retract when we tried to cycle it, we knew we had a different or, at least, a bigger problem than in previous incidents. We were in uncharted territory and sought out the most conservative response. We also recognized when to say "when." Additional time to troubleshoot and explore options would have been nice, but the fuel gauge dictated timely action. We made a decision to go to the beach and executed without hesitation.

We took advantage of our cockpit resources. Each member of my crew, regardless of their experience or seniority, had valuable input for the decision-making process. The discussion of mitigated engines and the suggestion to look up the arresting-gear location at an unfamiliar field were critical. Sometimes, posing a question may be enough to expose hidden hazards or smarter options that minimize risk.

LCdr. Stokes flies with VAW-115.

Don't Scar the Landscape

Photo by 1st Lt. Jeff Landis

By Lt. Nathan White

Not just a historic island for the aircrew of Carrier Air Wing Five, Iwo Jima lies in our backyard and is our primary—though less than ideal—site for field-carrier-landing practice

Iwo Jima—the name conjures up black-volcanic sands and U.S. Marines raising the American flag atop Mount Suribachi, in what would become one of the most enduring images of World War II. It took over one month to capture the barely six-mile-long island, claiming over 50,000 casualties in the process.

Not just a historic island for the aircrew of Carrier Air Wing Five, Iwo Jima lies in our backyard and is our primary—though less than ideal—site for field-carrier-landing practice (FCLP). Iwo Jima has just a single runway and is located 600 miles south of the nearest divert field on Honshu. The weather patterns

can vary from CAVU conditions one hour to WOXOF the next. Iwo poses challenges unique in naval aviation. We were just over two weeks away from a major deployment and were slated to return to the famous island to ready ourselves for CV operations.

The weather was beautiful the morning we arrived. I was scheduled for two night-FCLP periods, which left the afternoon open to explore the island. I crawled around one of the thousands of tunnels honeycombing the island, then I returned to the squadron. I arrived in plenty of time before the brief to review the field diagram and approaches. The runway is 8,700 feet long, with two sets of arresting gear at both ends. The parallel taxiway is rigged with gear at either end for use in an emergency if the runway is fouled.

Since noise abatement is not an issue in the middle of the Pacific, we would fly the standard Case I pattern during the day and Case III pattern at night. This would be a welcome relief from the 1,900-foot pattern we flew in Atsugi. Over the last several months, I had become adept at flying clara passes to a cushioned landing. Could I shift gears and actually fly the ball?

The squadron LSOs were experienced at Iwo, and they gave a quick but thorough brief for our night periods. Not long before, an air-wing pilot's brakes had failed during landing rollout. A hazrep concerning a faulty brake system and blown tires during a night FCLP period had been discussed in the last back-to-sea brief. Because of the recent brake problems, the briefer paid particular attention to "loss of brakes and directional control." I gave little thought to losing my brakes because I never have had a brake problem. My lost-brake game plan was to power up and take the jet around for a trap.

I suited up and read the gripes in the book. I noted the last gripe, which had downed the aircraft: "Brakes initially not responsive after touchdown; regained effectiveness only after pumping brakes several times."

Our man-up and launch, directly into the Case III pattern, went fine once I adjusted to the darkness. After several passes to knock off the rust, it was time to land, hot pit, and have another go. As I made my final ball call with over 2,500 pounds of fuel remaining, the runway lights dimly illuminated, and I was cleared to full stop. I touched down on centerline.

I extended the boards, and tapped the brakes—the pedals seemed normal. Despite the runway lights, the darkness was disorienting. I felt like

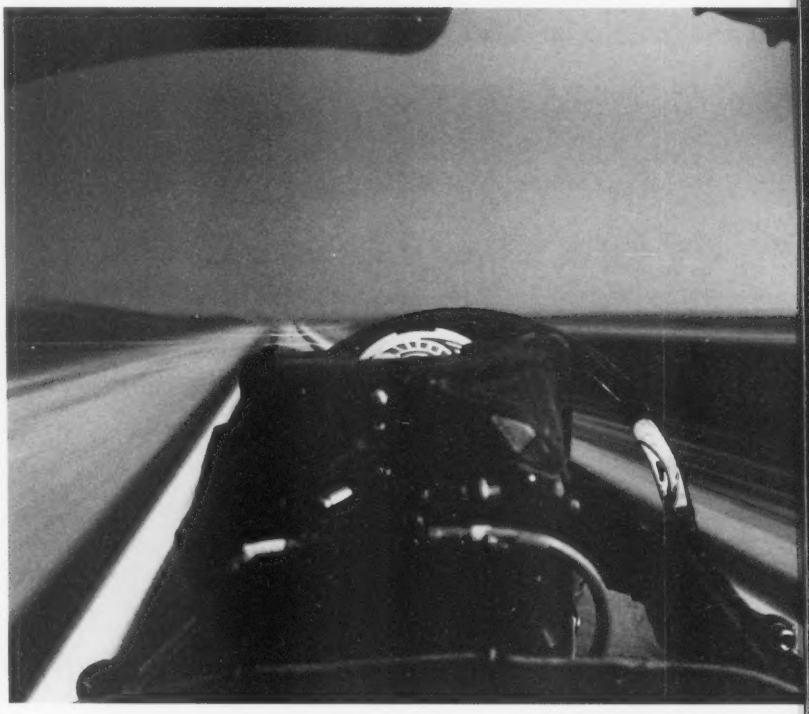

Photo by Matthew J. Thomas, Modified

I was screaming down the runway while I impatiently waited for the aircraft to decelerate. At 100 knots, I programmed back stick and used the brakes but still got no reassuring deceleration.

My mind flashed back to reading the ADB. I pumped the brakes, assuming they would return. I was on brain-stem power, and the act of pumping the brakes and keeping the Hornet on centerline required all my attention. After what seemed like an eternity, the brakes remained ineffective. My situational awareness was low: My three firing neurons were incapable of comparing the runway boards with my airspeed and determining if I was able to take the jet around. I visualized the jet careening down the cliff at the end of the runway. Because I was low on gas and SA, taking it around definitely was not an option.

I released pressure on the pedals, selected emergency brakes, and got back on the binders. Initially, I didn't feel a response, so I increased pressure on the pedals. Finally, I felt the jet begin to slow. I thought I was in the clear when I felt and heard a "thud," and the jet slewed to the right. A couple seconds later, the jet stopped to the right of runway centerline.

Taking a deep, ragged breath, I told tower I had a blown tire. Five minutes later, a tow tractor manned by a Japanese ground crew had me on a taxiway. I then realized how many Hornets had been waved off in the interim; five jets still were in the pattern or climbing to high holding, two were fuel critical. The island suddenly seemed deserted. The roar of jets in the pattern, that nearly had been continuous 15 hours a day, suddenly was gone. The airfield was eerily silent. Yet, I knew five of my friends were above me, running low on fuel, and waiting for the one runway within 600 miles to reopen.

Paddles scrambled out for a quick, combat-FOD walkdown. Each minute of the walkdown seemed like an eternity, but, eventually, the runway was cleared for my friends. The airwing duty officer and the crash crews quickly coordinated for the recovery. The LSOs were able to land everyone on the primary runway, using the arresting gear at both ends to trap aircraft landing in opposite directions. The local ground crew reset the gear as each aircraft taxied clear.

The next day, as I taxied clear of the runway after an uneventful bounce period, it was hard to ignore the 1,000-foot-long skid marks that started with 4,500 feet of runway remaining and ended with 3,500 feet remaining. What had gone wrong? I knew the Hornet's anti-skid system was disabled when emergency brakes were selected, and brake sensitivity increased significantly when the emergency brakes were actuated. As gingerly as I had tried to apply brake pressure, I still blew both main tires. The real issue was not electing to go flying again. My preflight game plan was sound: If in doubt, take it around, take a trap, and never troubleshoot a brake problem on deck.

If I had been able to reference the no-later-than numbers, I would have forced myself to look at the runway boards. I would have had plenty of time before I had to take the jet around or use the emergency brakes. Keep the no-later-than numbers in your hip pocket, and, if you happen to lose your brakes, you won't feel the need to go to GQ because you don't have the SA to make a better decision.

The air wing also learned some lessons about our primary FCLP field and its barrier capabilities. Taking a trap on a 75-foot wide, poorly illuminated taxiway, with no lens or other visual glide-slope indicator at night, may be easier said than done. This issue prompted the decision to continuously rerig the main barriers at each end of the runway.

If the weather had turned bad, or if any of the aircraft had been at a lower fuel state, Iwo Jima may have claimed more war material to add to that which still is strewn about its scarred landscape from over 50 years ago.

Lt. White flies with VFA-195.

Sonobuoys: Friend *or* Foe?

By AW2 Matthew Connell

The morning flight in the Philippine Sea started out like any other. As an aviation-warfare operator (AW) in the back of our SH-60B, I kept a solid radar picture for our battle group, as the sun came over the horizon. Although we flew as much as possible, the crews on board the mighty warship, a frigate, soaked up the flight time and got plenty of rest in between.

Not a single person complained about the abundance of tasking, because we all loved to fly. Despite all this flight time, I felt airsick on one flight, and I couldn't understand why. As a sensor operator, with well over 500 hours in the back of a helicopter, off the smallest LAMPS-capable ship in Navy, the last thing I expected to be was nauseated. We hadn't been in a port for a week, so I knew it wasn't the good life getting me down.

A little embarrassed about the situation, I kept my mouth shut and sat in the back, doing my job. This was a typical tactical flight: Nothing was happening. We carried a standard loadout of sonobuoys in our launcher, in case we came across Red October. To break up the monotony, our ship had scheduled a gun shoot for that morning. After we cleared the range, we moved to mom's starboard side to get a good seat for the show.

Even the fun of watching the frigate fire her guns did not help my airsickness. I opened the small scupper in my window and hoped the fresh air would help the queasiness in my stomach. As the fresh air hit me, I licked my lips. Not so fortunate, only to learn what it tastes like to lick a car battery fresh out of the box. Luckily, I also remembered the lessons I learned in the training squadron. I recalled an instructor telling me that a venting sonobuoy lithium battery tasted metallic.

The time for pride was gone, and I told the pilots about the situation. After I described the indications, both pilots admitted to smelling something different. This made sense, because all the air from the aft part of the cabin eventually makes it to the cockpit.

We had started our emergency procedures, which included jettisoning all buoys in the launcher, when I became violently ill. I began to experience the typical symptoms: nausea, lightheadedness and coughing.

"No problem," I thought, "All the sonobuoys are gone, problem solved."

We slowed to 60 knots, so I could open the cabin door and get a much larger dose of wonderfully fresh air. As I settled into my seat, I did not feel any better. Turning around, I shouted many expletives as I noticed two DICASS sonobuoys remained in their chutes. The pilot turned around and saw I was not in my seat about the

Even the fun of watching the frigate fire her guns did not help my airsickness.

same time the copilot called for the hung-sonobuoy procedures. I had to select each buoy in the launcher. Unfortunately, I felt the cabin door needed more attention because, as the pilot noticed in his rearview mirror, I was vomiting upside down, held in by the gunner's belt. Quick thinking by the copilot and an even quicker hand sent the two sonobuoys careening out the launcher as he again hit the "All Stores Jettison" button.

I obviously was not feeling good enough to continue operating the equipment. Some would say I was incapacitated as we called for emergency-flight quarters. We were on deck in eight minutes. The emergency-medical crew escorted me to sick call because I wasn't able to walk under my own power. Thanks to some pure oxygen, I recovered fully and was back in a flying status within 24 hours.

The severity of my airsickness could have been avoided if I had spoken up sooner. In our NATOPS briefs, we always talk about if any crew member "feels, hears, sees, or smells anything different," they should speak up. I suggest we add taste to that list.

Both pilots admitted to smelling something unusual. I felt airsick, which definitely is out of the ordinary. If any three of us would have spoken up about what we were feeling or smelling, the problem may have not become so severe. In a worst-case scenario, pride would have overcome me, while the lithium could have overcome the whole crew. Thanks to good aircrew coordination, we correctly identified the problem, executed the emergency procedure, and adapted to overcome the situation, even though things didn't happen perfectly. It was an experience I never will forget.

AW2 Connell flies with HSL-51 Det 1.

Mr. Orion's wild Ride

By Lt. Mitch Jones

Barely two months into our Keflavik, Iceland, deployment, I was finishing my second detachment. We just had completed our last mission from the icy, winter wonderland of Andoya, Norway. I was feeling more accustomed to the harsh operational environments these upper latitudes could impose. All we needed to do was get fuel, pick up our maintenance personnel, and fly a simple reposition to Keflavik.

After a quick turnaround on deck, I again found myself waiting at the holdshort for runway 15. I listened to my copilot give the takeoff brief I had heard so many times before. He briefed all the minimum-power requirements and airspeeds needed to get a 120,000-pound P-3C airborne. He included the various abort criteria and actions to perform if we had any engine or propeller malfunctions during takeoff.

We then talked about the current winds and RCR given by tower. Tower had reported the winds varied from 200 to 230 degrees, with speeds up to 28 knots, and the runway condition was wet, with good braking action.

Assuming the worst-case scenario, we faced nearly a direct 90-degree crosswind for takeoff. With that much crosswind, we needed at least an RCR of 15. Referencing our NATOPS wind component chart, we found an ICAO report that said "good" translated into a minimum required RCR of 18. The tower did not report any standing water on the runway. Likewise, we hadn't seen any standing water, nor any unusual braking requirements, on our landing only an hour and a half earlier. Everything appeared to be in order as I wrapped up the pretakeoff discussion with, "Let's get outta here."

Once cleared by tower to "line up and wait," I completed the takeoff checklist, as my copilot taxied into position. Moments later, the tower cleared us for takeoff. My copilot had the flight engineer set takeoff power. Meanwhile, I scanned the engine instruments, checked the flight instruments to make sure no "off" flags were present, and said we were ready for takeoff. My copilot released the brakes, and we were on the roll.

I felt my copilot put in right rudder to counteract the P-factor caused by the four props producing nearly 4,100 shaft horsepower. In the P-3C Orion, the takeoff is normally conducted from the left seat, since the nosewheel-steering control is located on that side of the flight station. Until reaching an airspeed where directional control can be maintained with the rudder, the pilot in the left seat has one hand on the nosewheel-steering control and the other hand on the power levers. The pilot in the right seat guards the other

Photo by PH2(SW) John Collins
Modified

set of power levers with his left hand and places his right hand on the flight control yoke. The flight engineer sets power.

As we accelerated down the runway, I could feel the crosswind acting on the flight controls, and I put in right aileron to counteract the lifting effect of the wind. At 50 knots, my copilot came off nosewheel steering and placed his left hand on the yoke. I called out "80 knots," scanned the engine gauges to make sure we had the required SHP, and reverted my scan mainly to outside. What happened next caught everyone off guard.

Passing 85 knots, I looked up from the instruments to check the aircraft's lineup on the runway as the entire aircraft suddenly shifted to the left. Now, instead of having the nosewheel positioned on the centerline, I had the right mainmount tracking down centerline. I felt my copilot initially increase right rudder, trying to stop the aircraft's left drift. He then added a little more right rudder to correct back toward centerline.

No sooner had I thought to myself, "Good. Nice correction," than the nose of the aircraft violently cocked to the right, into the wind.

I told my copilot, "Easy with it," thinking he maybe had overcorrected back to centerline. As we crossed centerline, the right-rudder input was taken out, but the aircraft continued toward the right side of the runway.

Naturally, we applied left rudder. Almost immediately, we found ourselves heading about 110 degrees on runway 15. We quickly passed the centerline again, this time on our way toward the left side of the runway.

I noted the airspeed was only about 95 knots. The option to abort the takeoff entered my head for a nanosecond, and, just as quickly, I dismissed the idea. The aircraft did not respond to the control inputs like it should. Every control input we applied caused an exaggerated reaction by the aircraft. Not realizing we were hydroplaning—none of us had ever experienced it—I assumed ice had developed on the runway during our turnaround on the deck. I thought there was no way to stop on the runway. We barely were in control as it was, and the idea of taking the aircraft off the side of the runway didn't exactly appeal to me.

I thought about taking the controls from my copilot, but he was doing everything correctly to keep us on the runway.

I rode the controls along with him and concluded I wouldn't do anything differently. So, I decided to follow the advice I give to every pilot who ever flies with me. When we discuss the numerous "what if scenarios," I simply say, "First and foremost, fly the plane!"

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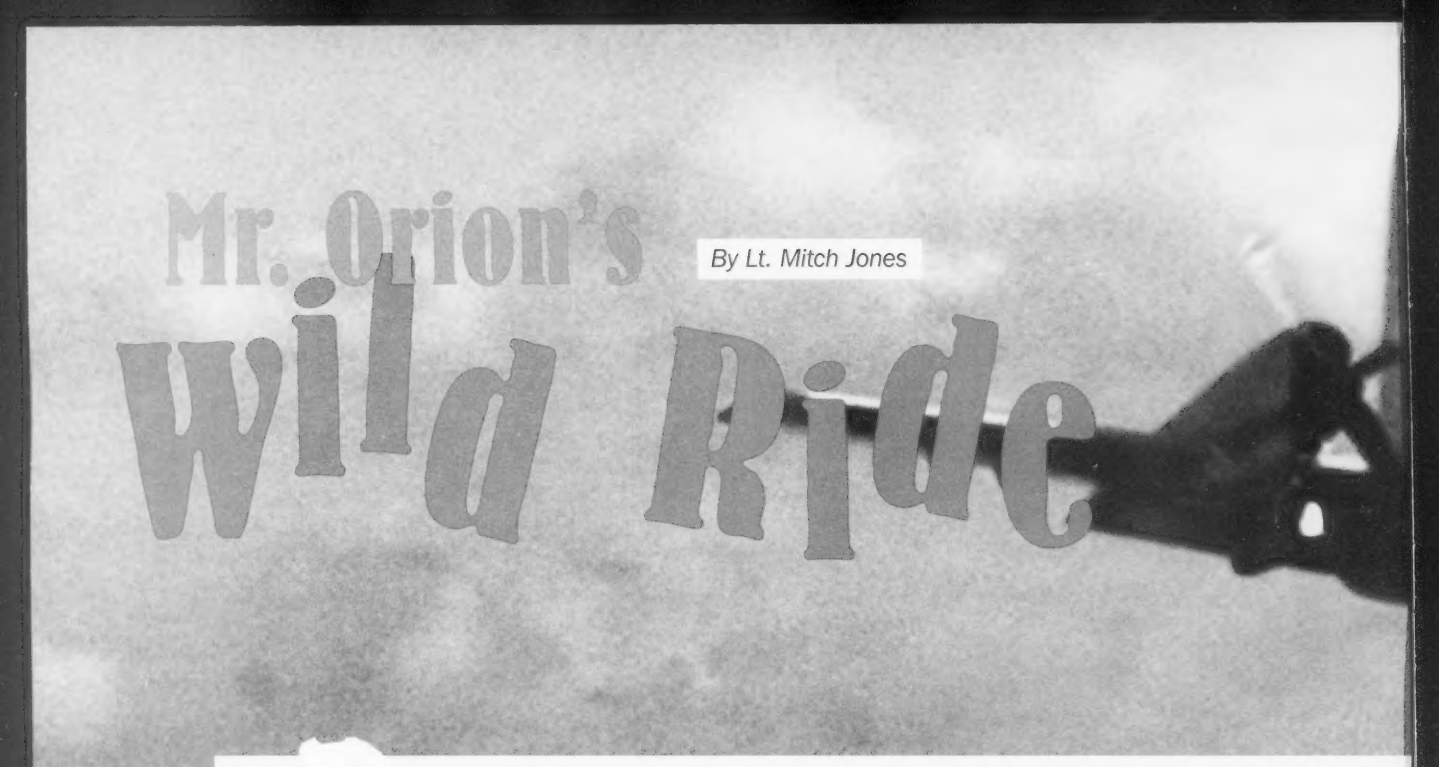
Mr. Orion's wild Ride

By Lt. Mitch Jones



Barely two months into our Keflavik, Iceland, deployment, I was finishing my second detachment. We just had completed our last mission from the icy, winter wonderland of Andoya, Norway. I was feeling more accustomed to the harsh operational environments these upper latitudes could impose. All we needed to do was get fuel, pick up our maintenance personnel, and fly a simple reposition to Keflavik.

After a quick turnaround on deck, I again found myself waiting at the holdshort for runway 15. I listened to my copilot give the takeoff brief I had heard so many times before. He briefed all the minimum-power requirements and airspeeds needed to get a 120,000-pound P-3C airborne. He included the various abort criteria and actions to perform if we had any engine or propeller malfunctions during takeoff.

We then talked about the current winds and RCR given by tower. Tower had reported the winds varied from 200 to 230 degrees, with speeds up to 28 knots, and the runway condition was wet, with good braking action.

Assuming the worst-case scenario, we faced nearly a direct 90-degree crosswind for takeoff. With that much crosswind, we needed at least an RCR of 15. Referencing our NATOPS wind component chart, we found an ICAO report that said "good" translated into a minimum required RCR of 18. The tower did not report any standing water on the runway. Likewise, we hadn't seen any standing water, nor any unusual braking requirements, on our landing only an hour and a half earlier. Everything appeared to be in order as I wrapped up the pretakeoff discussion with, "Let's get outta here."

Once cleared by tower to "line up and wait," I completed the takeoff checklist, as my copilot taxied into position. Moments later, the tower cleared us for takeoff. My copilot had the flight engineer set takeoff power. Meanwhile, I scanned the engine instruments, checked the flight instruments to make sure no "off" flags were present, and said we were ready for takeoff. My copilot released the brakes, and we were on the roll.

I felt my copilot put in right rudder to counteract the P-factor caused by the four props producing nearly 4,100 shaft horsepower. In the P-3C Orion, the takeoff is normally conducted from the left seat, since the nosewheel-steering control is located on that side of the flight station. Until reaching an airspeed where directional control can be maintained with the rudder, the pilot in the left seat has one hand on the nosewheel-steering control and the other hand on the power levers. The pilot in the right seat guards the other

Photo by PH2(SW) John Collins
Modified

set of power levers with his left hand and places his right hand on the flight control yoke. The flight engineer sets power.

As we accelerated down the runway, I could feel the crosswind acting on the flight controls, and I put in right aileron to counteract the lifting effect of the wind. At 50 knots, my copilot came off nosewheel steering and placed his left hand on the yoke. I called out "80 knots," scanned the engine gauges to make sure we had the required SHP, and reverted my scan mainly to outside. What happened next caught everyone off guard.

Passing 85 knots, I looked up from the instruments to check the aircraft's lineup on the runway as the entire aircraft suddenly shifted to the left. Now, instead of having the nosewheel positioned on the centerline, I had the right mainmount tracking down centerline. I felt my copilot initially increase right rudder, trying to stop the aircraft's left drift. He then added a little more right rudder to correct back toward centerline.

No sooner had I thought to myself, "Good. Nice correction," than the nose of the aircraft violently cocked to the right, into the wind.

I told my copilot, "Easy with it," thinking he maybe had overcorrected back to centerline. As we crossed centerline, the right-rudder input was taken out, but the aircraft continued toward the right side of the runway.

Naturally, we applied left rudder. Almost immediately, we found ourselves heading about 110 degrees on runway 15. We quickly passed the centerline again, this time on our way toward the left side of the runway.

I noted the airspeed was only about 95 knots. The option to abort the takeoff entered my head for a nanosecond, and, just as quickly, I dismissed the idea. The aircraft did not respond to the control inputs like it should. Every control input we applied caused an exaggerated reaction by the aircraft. Not realizing we were hydroplaning—none of us had ever experienced it—I assumed ice had developed on the runway during our turnaround on the deck. I thought there was no way to stop on the runway. We barely were in control as it was, and the idea of taking the aircraft off the side of the runway didn't exactly appeal to me.

I thought about taking the controls from my copilot, but he was doing everything correctly to keep us on the runway.

I rode the controls along with him and concluded I wouldn't do anything differently. So, I decided to follow the advice I give to every pilot who ever flies with me. When we discuss the numerous "what if scenarios," I simply say, "First and foremost, fly the plane!"

Continued on page 21

Crew Resource Management

Situational Awareness
Assertiveness
Decision Making
Leadership
Communication
Adaptability/Flexibility
Mission Analysis

Starting No. 2

By ATC(AW) John D. Bounds

By the third month of our Red Sea cruise, our trustworthy SH-60B and the detachment's crew were growing accustomed to the routine of several flights a day. The cruise seemed to be flying by.

On this day, we were having some difficulties. When the aircraft had returned from its last mission, a maintainer doing the turn-around inspection found the oil-bypass PDI button on the No. 2 engine had popped. The ship's ground-power station was not working, either. While the ship's electricians worked the electrical problem, we decided to use the Seahawk's APU as the power source for our preflight check to facilitate the launch.

The detachment chief had issued a VIDS-MAF, and the mechs had said the job could be completed and signed off before the scheduled launch. The AD3 grabbed his tools, reviewed the publications, and collected the parts he needed. He then went to work under the watchful eye of the AD CDQAR.

The aircrew had ironed out the plan with the maintenance chief at the preflight brief. The LCPO had briefed them on the work the engine maintainers were doing. He also said mechs needed to leak check the oil-bypass bowl. Since the oil filter and O-ring were to be changed, a pressure check before the aircraft launch was required to verify its integrity.

The HAC and H2P preflighted the aircraft, and, after checking with the technicians, they started the APU for electrical and flight-control checks. Everything was fine, except the oil-filter swap was taking a few maintenance minutes longer than anticipated. The CDQAR stopped by the cockpit to tell the aircrew what was happening, and to tell them the mechs almost were done.

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In the meantime, flight quarters was called away, and all stations were manned-up. The inspector and the technician were on the engine-work platform when the filter bowl was tightened. They watched as the packing oozed out the side, indicating the O-ring was damaged during installation. The CDQAR quickly climbed down from the aircraft and got a replacement gasket. On his way, he again stopped by the cockpit and explained what had happened. The pilots reminded him the launch time quickly was arriving. The CDQAR soon reappeared with a new O-ring and handed it to the AD3, who installed it on the bowl. Meanwhile the CDQAR turned and walked into the hangar. As he passed the cockpit, he gave the pilots a thumbs-up signal. Later, he explained what he meant by that signal was, "We are on it."

The pilot in the right seat, however, took the signal to mean the job was complete, and he told the pilot in the left seat, "They're done." That pilot rogered up and continued with the start checklist.

The pilots never cleared the area again, and the HAC gave the ship's LSE (a new guy) the signal to start the No. 2 engine. The ship's LSE saw the signal and also noticed the maintainer on the engine-work platform. He initially was confused by the signal but figured it was something they must do for helicopter maintenance. The LSE returned the pilot's signal without hesitation.

Focusing on his work and squatting in front of the engine, the AD3 was screwing on the oil-bypass bowl when the engine roared to life. Engine oil from the engine poured out the bypass bowl in a four-foot arc around the connection point. The AD3 looked away to protect himself and pressed his back against the engine-cowling door, trying to get as far away as possible from the jet engine. Fearing that the rotor head, just two feet above him, could engage at any time if the rotor-brake slipped, he curled up into a small, shaking ball. Hearing the engine spool up as he walked into the hangar, the CDQAR immediately spun around on one foot, ran toward the aircraft, and gave the cut signal to the cockpit. The pilots instantly complied, and the engine whined down.

The detachment CPO had to restrain the oil-soaked AD3—who had jumped six feet to the deck—from confronting the pilots. He was hot and wanted to know why the engine had been started. The OinC and the LCPO also wanted to know how this could have happened. Needless to say, the flight was delayed to examine the chain of events that led to this near-mishap.

The OinC and the LCPO interviewed everyone, and they found communication had broken down because the APU was running. It was considered to be the major distraction. Hand signals had replaced all verbal communication on the flight deck. The non-standard thumbs-up signal the CDQAR had given the pilots meant one thing to him and another to the pilots. Since the ATO had gone through the start checklist up to "Engines…Start," and everyone was in a hurry, the pilots failed to double-check both sides of the aircraft. The OinC also pointed out that an aircrew member should have verified all panels were closed before engine turn-up. The LSE's lack of experience led him to repeat the signal given him without question. He should have said something didn't look right.

Although the planned maintenance check was briefed and all hands knew basically what was going on, the OinC found that everyone wasn't on the same page. The maintenance CPO and mech CDQAR were the only maintainers on the flight deck who knew what was required for the pressure check. Finally, at some point, we should have delayed flight quarters to finish maintenance.

ATC(AW) Bounds is the LCPO for HSL-44 Det 6.

Always Plan Your Emergencies

I pedal-turned to the right and immediately felt a loss of power.

By Ltjg. Billy Walsh

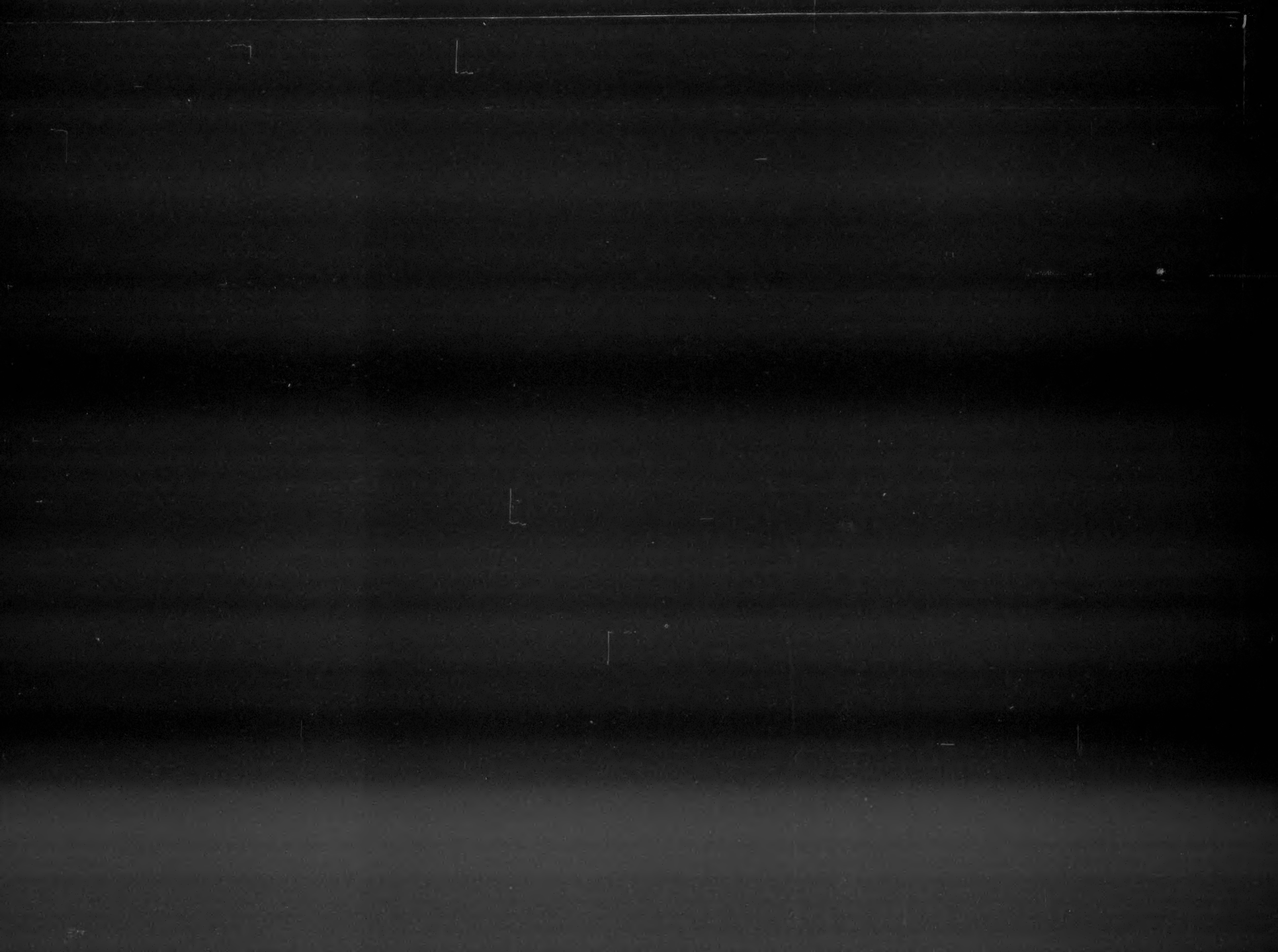
I was thrilled to be deploying on a Gulf cruise within two months of arriving at my first fleet squadron. Being on an AFS meant we would get a lot of vertrep time under our belts.

We had had a few large vertrep hits on the transit out, and, once we got to the AOR, we weren't disappointed; the hits kept coming. It's a great feeling to be operational: "slinging the beans" for the Fifth Fleet.

We had two CH-46s and six pilots in the detachment, and we flew nearly every day. More than 90 percent of January's flight hours were operational, and February was to be just as busy. With this tempo, our training flight time was limited to shooting instrument approaches and FAM-SAR scenarios during lulls in the vertrep action.

With a tandem-rotor design, the H-46 is a superb aircraft for fleet logistics, but, T58 engines have a history of failures and roll-backs. An important part of our NATOPS brief is the plan for a single-engine failure and to which flight regimes an engine failure would be most critical.

Hero Photo by Sgt. Eric C. Tausch; Composite



The dynamics of a vertrep frequently places the helicopter without enough forward airspeed to maintain level flight, should an engine fail. This situation often is compounded with the weight of an external load. Sitting in a high hover is a particularly vulnerable situation; yet, it happens routinely during vertreps. For this reason, our OinC stressed to the three new H2Ps to have a plan for an engine failure every time we pulled into a high hover or any compromising situation. Furthermore, we should tell our plan to the crew and put the helicopter at an altitude and in a position to execute that plan if necessary.

Halfway through February, we had a routine, post-phase-A, functional-check flight (FCF). The engines hadn't been affected by the phase, so we primarily were concerned with checking the flight controls. After a couple of hours of on-deck checks, we lifted into a hover several hundred feet off the windward side of the ship.

The functional-check pilot (FCP) directed the FCF according to the checklist. I was the pilot at the controls and flew the required profiles, while the FCP and the crewmen recorded data. Originally, we had wanted to be in a 30-foot hover, so, if we lost an engine, we already would be in ground effect. However, at that altitude, we'd be taking on salt spray from our rotor wash, so we climbed to 50 feet.

I announced, "We're at 50 feet. If we lose an engine, we'll settle straight down" (as opposed to dropping the nose, picking up speed, and flying out of a higher hover). That call had become habit in the cruise.

Our next check required us to face 90 degrees away from the windline. I pedal-turned to the right and immediately felt a loss of power. The FCP called out, "Engine failure!"

I responded, "Settling," while pedal-turning back into the wind and oncoming waves. The FCP took the controls from me just before we hit the water. He held us upright in the water, keeping the nose high enough to prevent the chin bubbles from being broken by the oncoming waves. The two crewmen were strapped into their seats and reported we still had watertight integrity. They started calling out the single-engine checklist. We knew our best bet was for everyone to stay calm and for each to perform his role in working through the emergency. After interpreting the engine gauges, we told tower what was going on and prepared for an engine restart.

Everything was happening slowly and methodically. I even had time to close my window, figuring the splashes in my face soon would be distracting. We dumped fuel and started the APU. At this point, the waves broke open the "hellhole" door on the bottom of the fuselage, and water started splashing into the cabin. The second crewman jumped on the door and held it down, while backing me up on the engine-restart checklist. Fortunately, the engine fired up to full power on the first restart attempt and immediately plucked us out of the water and into a forward-flight transition.

On our way around the ship for our approach, we "cleaned up" from the emergency and prepared for a normal landing, keeping in mind we could lose the engine again at any time. The landing was uneventful. The aircraft required considerable cleaning after its saltwater bath, but all the maintenance crew welcomed us back on deck, anyway, with handshakes and cheers.

Good aircrew coordination between the cockpit and the crew and a calm approach to a survivable situation were instrumental in getting us back on deck. Having a plan for the initial reaction to an emergency, coupled with some good karma (always a factor), was the key to success this day. I realize from this experience why we make it a point to be ready for an engine failure at all times during every flight. Never get lax, even after being in the groove of a long VertRep. Some great flying and powerful lessons made for a memorable first cruise.

Ltjg. Walsh flies with HC-5 Det 3.

NATOPS Doesn't Cover This

By Maj. David L. Ortolani, USAF

It was a typical detachment for the Prowler RAG in El Centro—lots of flying to get the required student Xs we couldn't get at Whidbey because of the weather. I tried hard to finish the syllabus in order to join my new squadron for the deployment to Operation Northern Watch. They were leaving at the end of the week. I had only a couple of hops left, and one of those was my NATOPS check, which was scheduled that morning.

It all began according to plan. The brief went well, with the pilot-evaluator drilling me on various aspects of the Prowler's systems. Man-up, PC checks and departure were uneventful.

We flew to IR 214 for the low-level portion of the sortie. We began with a FOD check and G-warm, then

descended to 800 feet for the first leg. So far so good, and I enjoyed the low-level. After the turn to the second leg, we climbed to 1,500 AGL to practice a level-S maneuver: a hard right turn, followed by a hard left turn. Again, everything was normal. Then it got interesting. On our second hard right turn, at 430 knots, we heard and felt two distinct thumps, similar to engine chugs. I thought we had taken a bird. The aircraft began an uncommanded slow roll, farther right, over-banking past 90 degrees.

As I looked to see what was happening on the pilot side of the cockpit, I noticed he had both hands on the control stick. He said, "I can't move the stick." OK, so this isn't going to be a normal NATOPS check.

Finally, with full left rudder input, the pilot was able to right the aircraft and climb. I began to breathe again. I switched the squawk to 7700, called L.A. Center on guard, and declared an emergency. Center heard us, but we couldn't hear Center, so we finally switched to Yuma Approach and declared an emergency.

We climbed off the low-level. To maintain wings level, we had to use rudder and differential thrust. I looked across the cockpit and noticed we had lost our combined hydraulic system, and the stability-augmentation system had disconnected. We pointed the jet toward Yuma and executed the checklist for flight-control malfunction, but it didn't help. We needed to do controllability checks to find out what we had and didn't have. I called Yuma and asked to be cleared into the R2301W area to troubleshoot.

Once established in the area at 15,000 feet, we began the control checks. Full left stick deflection gave us no roll or flaperon movement. Right stick deflection gave us about one inch of flaperon movement and a corresponding right roll that only could be countered with rudder and some differential thrust. We had no problems with pitch or rudder control.

Fortunately, there was an F-14 working the area at the time we declared the emergency. They stayed in the area to help any way they could. We asked them to give us a good once-over; they joined on our right wing and saw no obvious damage. At this point, Yuma launched their SAR helo. I was glad to hear that, as I was 90 percent sure we were going to eject.

We discussed how we should configure for landing. We talked about a no-flap, no-slat approach, so we could keep our current configuration. However, we did not know how that would affect our controllability. The problem is that no-flap, no-slat approaches are less stable laterally than a normally configured approach, and we already were as unstable as we wanted to get.

We finally decided on a normally configured approach. We stabilized at 15,000 feet, dumped cabin pressure, dirtied-up, and electrically lowered the flaps and slats. We would use the emergency blow-down system for the gear. After dirty-up, we did a few more controllability checks and discovered the same situation. No left flaperon available, very little right flaperon, with the corresponding roll stopped with rudder and thrust.

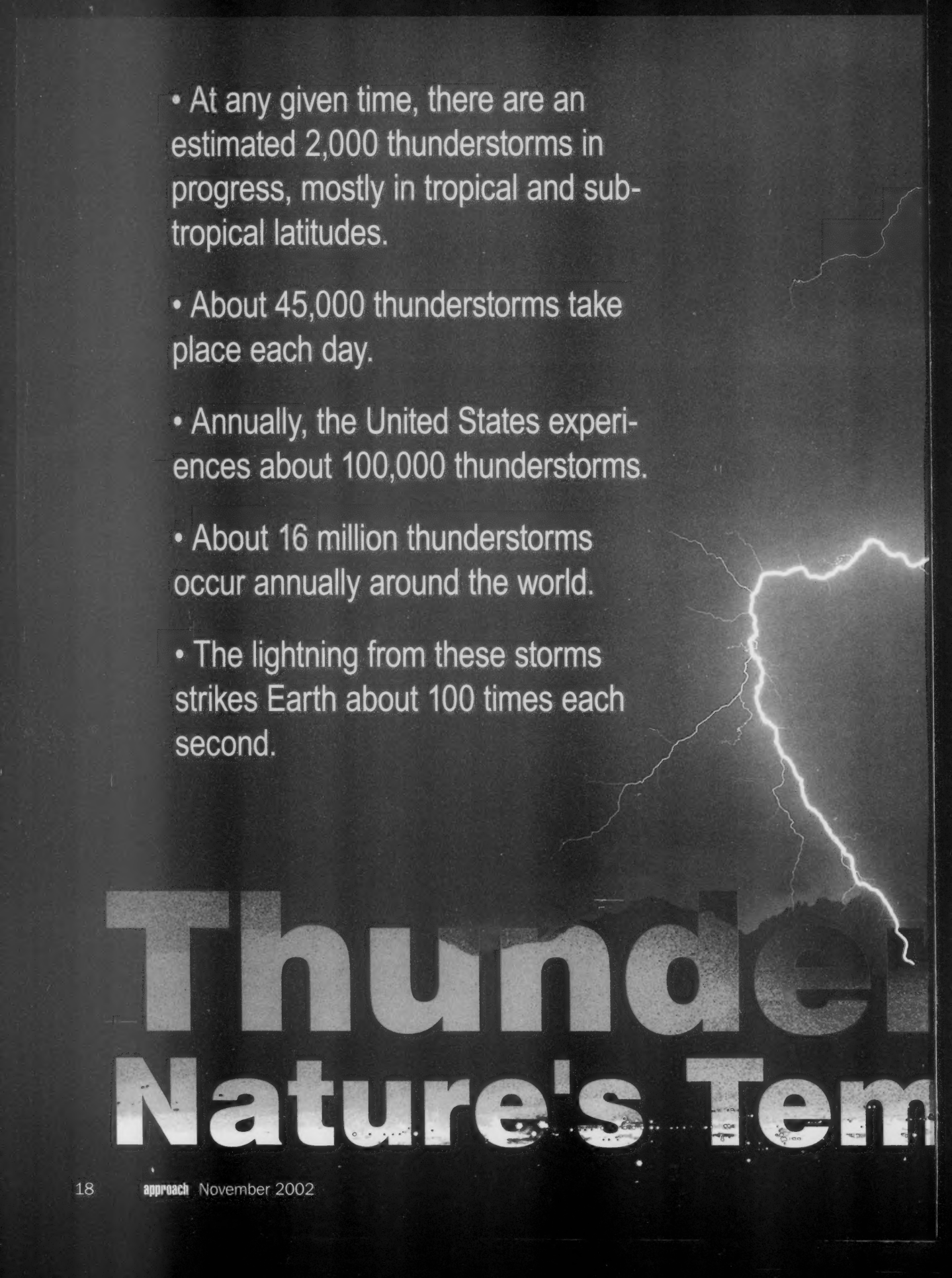
We decided the best way to approach Yuma was with a large, sweeping left turn, so we wouldn't need to roll right for any reason. We set up for a 30-mile, sweeping left final for the trap. The Tomcat and SAR helo followed us the entire way. The approach went fine.

Then, on short final, at 150 feet, an uncommanded roll to the right began. The pilot couldn't stop the roll until we were about 20 degrees, right wing down. He had to use heavy rudder and differential thrust. The aircraft touched down 500 feet short of the arresting gear, still about 5 to 10 degrees right wing down. We rolled into the wire and stopped. I never have been so happy to be on the ground.

The pilot couldn't stop the roll until we were about 20 degrees, right wing down.

I've often thought about that event. We were confronted with an emergency situation that was not covered in NATOPS. As it turned out, the left flaperon-actuator pack had blown apart. What saved us that day and allowed us to bring the jet back to fly another day was, first of all, outstanding stick work by the pilot. Second, though, it was the ability to apply the knowledge of the jet's systems in a situation that doesn't have a simple, cut-and-dried EP checklist. That hop was the most interesting checkride I've ever had.

Maj. Ortolani flies with VAQ-133.



- At any given time, there are an estimated 2,000 thunderstorms in progress, mostly in tropical and sub-tropical latitudes.
- About 45,000 thunderstorms take place each day.
- Annually, the United States experiences about 100,000 thunderstorms.
- About 16 million thunderstorms occur annually around the world.
- The lightning from these storms strikes Earth about 100 times each second.

Thunder
Nature's Tem

By LCdr. Greg Ireton

As a young AG, I was the duty weather observer one eventful day at good old LP1 at Chambers Field, NAS Norfolk. It was common to experience "airmass" thunderstorms during the summer. One in particular provided excitement for me, as well as a C-9B driver.

During the standard display of anger from an afternoon thunderstorm, lightning hit dead on the runway centerline and sent large chunks of concrete flying. Only a few minutes away, a C-9B was on approach. Despite the storm, the pilot said he needed to land. He made a textbook landing, skillfully avoiding the large hole in the runway during rollout.

This flight easily could have ended in disaster if Mother Nature had unleashed her full fury. Thunderstorms present aviators with many meteorological hazards: extreme turbulence and icing, low-level wind shear, microbursts, lightning strikes, and hail. They can spin off tornadoes, flood aircraft engines, and abruptly change altimeter readings on final.

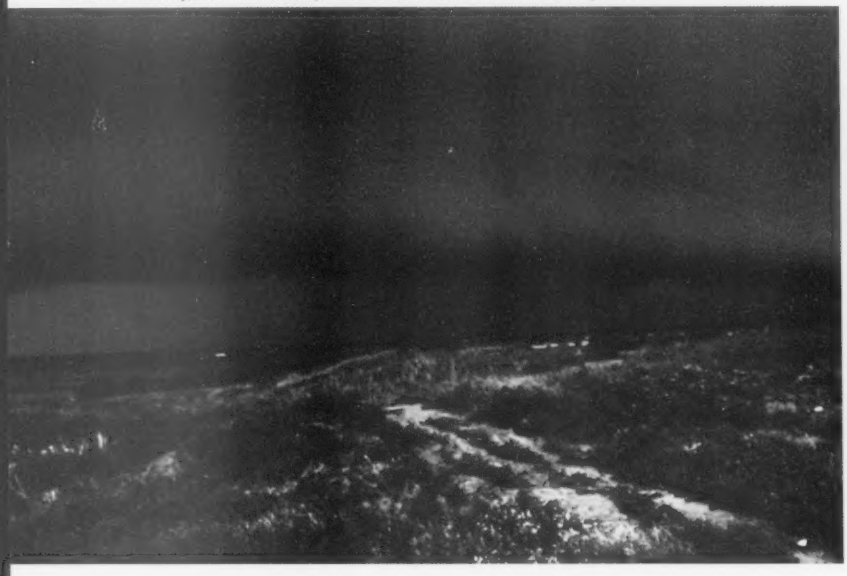
Often called nature's heat engine, thunderstorms are born from cumulus clouds that grow into towering cumulus and, ultimately, reach adulthood as cumulonimbus. While thunderstorms can occur anytime during the year, they most often occur in the late afternoon to

storms: per Tantrum

early evening on hot summer days. They can form by themselves (single cell, super cell, or airmass), or in clusters (frontal, squall lines, or mesoscale-convective complexes-MCCs). Thunderstorms harness energy equal to—and often greater than—the energy released by the atomic bombs dropped on Japan in World War II.

Turbulence is the greatest meteorological danger to aviation. It is caused by the tremendous updraft and downdraft winds within the thunderstorm. The most severe turbulence is between 8,000 and 15,000 feet AGL. Updraft winds can be greater than 65 feet per second, with roller coaster intensity, but without the tracks. Downdraft winds also can produce turbulence, but they usually are less severe and occur below 10,000 feet AGL. Downdrafts can push a plane into the ground, regardless of the presence of a runway.

NOAA Photo Library, NOAA Central Library; OAR/ERL/National Severe Storms Laboratory (NSSL)



Roll cloud. The dark leading edge of a thunderstorm indicates the presence of a gust front, which is caused by a microburst. This feature is also a visual indicator of low-level wind shear.

Icing is another significant hazard associated with thunderstorms. It can occur during all three stages of a thunderstorm, the cumulus or developing stage, mature stage, and the dissipating stage. Icing generally occurs in the mature and dissipating stages, the middle levels of the thunderstorms, where the temperatures are between 0 and minus 15 degrees Celsius. Supercooled water (that exists at below-freezing temperatures—it's a thermodynamic thing) will freeze on contact with an aircraft. Clear icing can be extremely hazardous, extremely quickly.

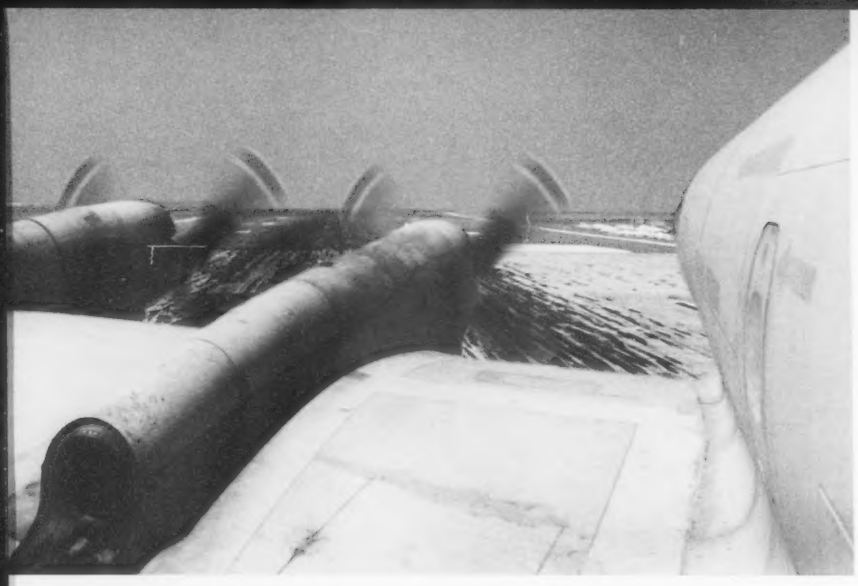
Hail is regarded as one of the worst hazards of thunderstorm flying. It usually is found between 10,000 and 15,000 feet AGL, with the greatest frequency of hail at the mature stage. Hail can produce serious structural damage to an aircraft in just a few seconds. It can be found as far as five miles outside and ahead of an advancing thunderstorm.

Microbursts are yet another hazard well-known for bringing down airplanes sooner than expected. They are small-scale, intense downdrafts that, upon reaching the surface, spread outward in all directions. The greatest threat from a downdraft often occurs in the front or leading edge of a thunderstorm. Because of their small size (less than one mile to 2.5 miles), and their short life span (usually less than 15 minutes), downdrafts most often occur over areas without surface precipitation.

Microbursts are not easily detectable, using conventional weather radar or wind-shear alert systems. The intensity of the downdraft can reach 100 feet per second. Horizontal winds near the surface can be as strong as 45 knots, resulting in a 90-knot shear (headwind to tailwind change for a traversing aircraft) across the microburst. A major consideration for pilots is that a microburst will intensify for about five minutes after it strikes the ground.

Refer to the Safety Center's website, www.safetycenter.navy.mil/aviation/articles/thunderstorm.htm, for more information on other hazards. You'll also find do's and don'ts of thunderstorm flying, and you'll learn how to interpret radar echoes on in-flight weather radars. Good luck, and don't forget to get that NATOPS-required weather briefing or to update your brief if thunderstorms are forecasted.

LCdr. Ireton is the OinC of the Naval Training Meteorology and Oceanography Detachment, Corpus Christi, Texas.



WILD RIDE *Continued from page 11*

Having made the decision to get airborne as quickly as possible, I rechecked the airspeed indicator, looking for the 123 knots we had briefed as the rotate speed. Just then, right rudder was reapplied. Again, the nose cocked to the right, and we were on our way to the right side of the runway. Unfortunately, the airspeed needle just passed through about 105 knots—we were 50 degrees off runway heading.

As we passed the centerline for the third time since starting our wild ride only a few seconds earlier, I knew there was not going to be a fourth time. The oscillations induced by our rudder corrections got worse with every application, regardless of how smooth we tried to be.

One last look at the airspeed showed 110 knots. Good enough. "Rotate!"

The mighty Orion hesitated for a moment, decided she had had enough of these runway antics, and took to the air. The edge of the runway passed beneath us, as the landing gear cleared the deck. A great sigh of relief swept over me, and my gluteus maximus released its death grip on the seat cushion. The whole evolution had lasted only a few seconds, but it had felt like an eternity.

We cleaned up the aircraft, completed the climb checklist, and made a call to tower to report the less-than-desirable runway conditions. In a not-so-polite voice, I suggested they check the runway for ice. The tower commended us for our "airmanship," told us he had had his finger on the "red button" to call for the crash crew, and said they would inspect the runway.

I switched to departure and copied the rest of our routing to Keflavik. I then checked with the crew to make sure everyone was OK. About 10 minutes into the flight, Departure called us and said Andoya tower had reported no ice on the runway. They never mentioned if there was standing water, but it was obvious to me there had been. I acknowledged Departure and then began a long discussion with my flight-station crew about hydroplaning. We talked for the next four hours of the transit.

Again, weather had reared its ugly head and reminded me never to let down my guard. We had been operating in Andoya for a week. The temperatures had been below freezing the whole time, and all precipitation had been in the form of snow. There had been light snow showers earlier that morning when we took off for our first flight of the day. However, by the time we were ready for the last takeoff from Andoya, the temperature had increased to a balmy 34 degrees Fahrenheit.

I surmised the snow on the runway earlier had melted, and, perhaps because of the slush buildup on the sides of the runway, the resultant water had failed to drain properly. Having just landed on runway 15 only an hour and a half before with no problems, I became lax.

In retrospect, I should have asked tower about any standing water on the runway before taking the active. That simple question could have prevented the whole situation. I would have tailored the takeoff brief to include the unique possibility of hydroplaning. While it is impossible to cover all contingencies you may encounter during every phase of flight, you certainly can reduce your risks for each situation.

Lt. Jones flies with VP-45.

Almost immediately, our crewman picked up a fast-moving radar contact directly south of us.

Power, Power, Power!

By Lt. Mike J. Gillio

I was a new H2P on my first SH-60B cruise. I had been in the squadron for three months and had completed the six-week work-ups. We were deployed in the Caribbean, conducting counter-drug ops (CDOPS).

Anyone who has been on CDOPS knows the general routine is fairly benign, but it often is interrupted by high-priority, quickly changing intel and tasking. This night was no different. The detachment OinC and I had been scheduled for a standard SSC mission, only to be called to combat 30 minutes before the flight for new tasking.

We launched on our new mission at 2200. A thick overcast layer at about 700 feet obscured most of what little moon existed. We were to head 70 miles north and help one of our ships find and recover 50 bales of cocaine. The drugs had been dumped by a go-fast (drug boat) earlier in the day. No further info was provided.

When we arrived on-scene, just south of Guantanamo Bay, Cuba, we discovered the ship was not where it should have been. We later learned it had been diverted several hours earlier with last minute tasking. We were not an NVG-capable aircraft, and our FLIR was down. With no datum, which our non-existent surface friend would have provided, or other information, we could not conduct an open-ocean search with our searchlight. We headed to the south and resumed our original mission.

Almost immediately, our crewman picked up a fast-moving radar contact directly south of us. We quickly looked in that direction but didn't see

any lights. Things started to get interesting. We descended to 200 feet, our minimum night-SOP altitude, as our crewman vectored us toward the contact. At one-half mile out, we turned on the searchlight, and there it was: a go-fast, running dark at 20 knots. Surprised, they kicked it up to 35 knots and swerved to escape the light. The chase was on.

Fortunately, we had approached and overflown the go-fast from the north. The boat turned and headed south, right toward mom. It was difficult to maintain an accurate radar track, as the boat constantly swerved, changed speed, and even went DIW, in an effort to evade. None of the aircrew had any CDOPS go-fast experience, but we had discussed some tactics during precruise preps. We decided the best action was to continually mark-on-top the boat so mom could use our position to plot an intercept course.

We kept the spotlight on the go-fast as much as possible. Its skipper didn't like the light, and his evasion tactics slowed him down as mom closed.

At 200 feet, on a pitch-black night, we were flying 50-knot racetrack patterns around a violently maneuvering go-fast, while trying to keep a searchlight aimed at him. If it sounds like alarms should have been going off in our heads, they were.

We discussed our options and came up with a chase plan. The flying pilot was to be inside the cockpit at all times, on instruments and responding to vectors from the aircrewman. The aircrewman was to stay on the radar. The non-flying pilot would slew the searchlight and handle all comms and coordination with mom. This setup worked great for the first 45 minutes of the chase; then, in about 20 seconds, all of our crew coordination went out the window.

The pilots had been swapping controls and crew responsibilities when the go-fast jinked from side to side below the helo. The go-fast then went DIW, before suddenly taking off and swerving to my OinC's side as we flew overhead. My OinC, who had the controls at the time, banked hard right and took control of the searchlight—without giving up the flight controls.

I was distracted by a radio call from the TAO on mom. I saw my OinC staring out the window and down at the go-fast as he leveled the wings and slewed the searchlight. Just then, the hair on my neck stood up. Out the corner of my eye, I saw the unmistakable sight of salt-water spray in my side window. A quick look at the RADALT confirmed we were booming through 50 feet, in a descent. The aircrewman noticed the same thing as we simultaneously yelled, "Power, power, power!"

I pulled the collective nearly to the stops and watched all the engine instruments spike into the red as torque reached 139 percent. The RADALT needle stopped descending at 20 feet. Total elapsed time was about 20 seconds from control swap to power pull.

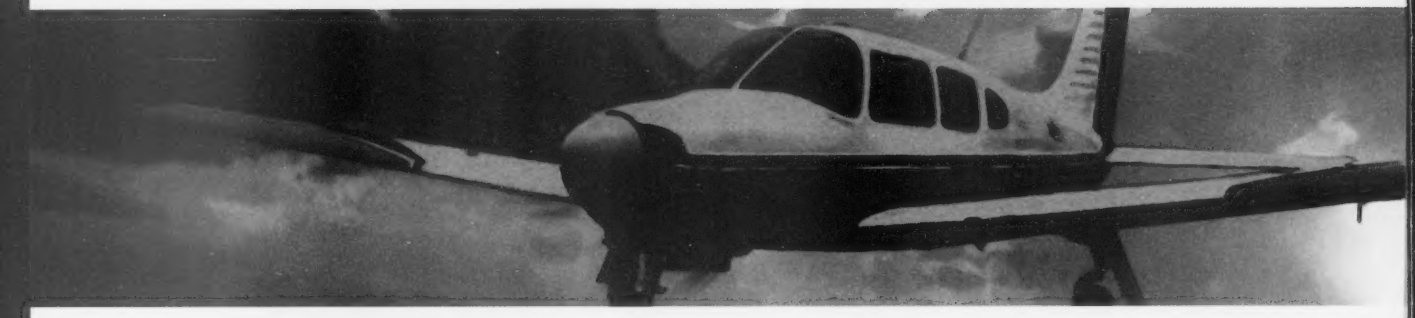
It's amazing how a short lapse in crew coordination almost led to a 40-knot, running-water landing. We had taken the time to brief the dangers, and we had an effective coordination plan. The first time we deviated from the plan, we almost put the helo and three people in the water.

We leveled at 500 feet, breathed a sigh of relief, and debriefed what had happened. RADALT HOLD had been engaged and working all night, and it should have been engaged at the time of the descent. I suspect the OinC, as he slewed the searchlight with his thumb on top of the collective, inadvertently squeezed the trim button on the bottom of the collective with his forefinger. This would have disengaged the RADALT HOLD. Couple that with a slow-speed turn, a pitch-black night, and an outside scan, and we were asking for trouble.

We realized the dangers before we began the chase. Our safety depended on good crew coordination. All it took was a momentary lapse to get us into trouble. We reemphasized crew duties and coordination and decided to reenter the chase at 500 feet, instead of 200 feet. This time, we stuck to our rules, and there were no further incidents on what turned out to be a seven-hour pursuit.

Lt. Gillio flew with HSL-44 Det 4.

The *Most Valuable* Flight



By LCdr. Dave Bouve

Ask any aviator on what flight they learned the most, and they will recall, with clarity, a tough check ride, a significant flight with their on-wing, or a hard-earned lesson learned in the fleet. I have never forgotten my flight, even though it happened 12 years ago.

I was in the early fam stage in VT-2 at Whiting. One of my roommates was going through primary at the same time. He and I were commissioned together at Miami University in Oxford, Ohio. He became a very experienced pilot while flying in college; he had his private-pilot's license, an instrument rating—the works.

It was autumn, and he had a great idea: We could rent a civilian plane and fly ourselves to the municipal airstrip in Oxford, 30 miles north of Cincinnati, for homecoming weekend. You know, "Hail the conquering heroes," and all that. Sounded great to me, so he set it up for the two of us, plus another classmate who had graduated from Miami before us.

The aircraft he selected for our journey was a Piper Arrow, a single-engine plane with four seats and retractable gear. The plan was to fly to Oxford as early as possible on the Friday of homecoming weekend, but the schedule writers in squadron ops were unsympathetic to my on-deck-by-1200 snivel. By the time the three of us got to the civilian field in Milton and had our bags stowed in the plane, it was close to 1600.

My pilot classmate was in the left seat, I was in the right, and our friend was in the back seat. He had filed IFR, and when I asked where we would be stopping for fuel, he surprised me by saying the plane had the range to make it in one leg—if you plan on zero wind, as it turns out.

For those of you now figuring distances in your head, Pensacola to Cincinnati is about 650 miles, following the most direct route along the airways. The Arrow cruises at about 130 knots, and carries 72 gallons of useable fuel. I guess you know where this story is headed.

Off we went. My pilot classmate did all the talking to ATC, and a few hours later, I enjoyed the view from 6,000 feet as the sun set over the foothills of Tennessee. Boy, this was nice, I thought—flying without worrying about the pesky kneeboard cards, checklists, and instructors.

One thing about our Arrow was that the fuel

pump only could feed from one wing tank at a time, so we had to switch tanks every 30 minutes or so to keep the load balanced. When the needles on the two fuel gauges were at the halfway mark for each, I looked at the chart and saw we were only halfway to Oxford.

Hmmm, what does it mean if groundspeed is less than true airspeed? Headwinds, yes—I definitely recalled my on-wing mentioning those. Every pilot reading this story knows that little voice you hear and the feeling you get in the pit of your stomach when something isn't right. However, having no flight experience beyond fam 3, and no experience with ATC, instrument flight, or that little rule about 10 percent or 20 minutes, whichever is greater, all I could do was ask, "Are we going to have to stop for gas somewhere?"

In a classic case of get-there-itis, he said, "No, we'll make it."

In a classic case of not knowing any better, I said, "OK."

I had figured out what the aircraft symbols on the VFR and IFR charts meant, and I knew we were passing over airports that could have sold us gas, but we kept our eyes on the glow of Cincinnati on the horizon. The needles by now had dropped to one-quarter tank each. Checking our groundspeed and distance to go, even I could see it would be close, but we pressed on. Our planned route of flight took us over the Cincinnati VORTAC—right through the middle of their approach and departure corridors.

The airway had us going almost due north, right where we needed to go, but, surprise, surprise, approach had us steer 030 for vectors around the Cincinnati airspace. This possibility never had occurred to us, and the change definitely would add mileage to our trip. It was now 2100 on a Friday night, and, as we headed to the northeast, we approached the empty mark on both tanks.

The city lights spread out below our left wing didn't look so inviting now. Hey, that's Riverfront Stadium! Even at this late point, we could have declared a fuel emergency and landed at Cincinnati, but we didn't. The rationale was that the fuel gauge must have some tolerance built in, right? Even though both needles solidly were on "E," there had to be some slop, just like in a car, right?

After cheating every assigned steer five or 10 degrees to the left and making repeated requests to resume own navigation, we finally had annoyed approach enough. They gave us a vector of 340 degrees, direct Oxford, and switched us. The Oxford airport came into view as we descended out of 6,000 feet.

The final kicker for the evening was that we didn't have the CTAF frequency for the field, so we guessed at the winds and aimed for the nearest end of the runway. The lights at the field were on, which was a good thing, because there was no tower, and we didn't have the frequency that activated the pilot-controlled-runway lighting. The lights could have gone off at any time during our approach, but they stayed on, and we landed. My legs still were shaking as we got out of the plane, split up, and went our separate ways for the weekend.

It was now 2100 on a Friday night, and, as we headed to the northeast, we approached the empty mark on both tanks.

After refueling, we calculated that one wing tank almost was dry; the other had five gallons of fuel remaining.

This was a defining moment in my career as a pilot. Even though I had no part in the flight planning and wasn't much more than a passenger, I know we both did many things wrong. There were countless links in this chain that almost led to disaster.

At the time, I never had heard of ORM or CRM, but I should have spoken up. To say I was uncomfortable would be an understatement. I learned more in that single flight than in any other since.

LCdr. Bouve flies with HSL-42.

Taxi Trials and Tribulations in Turkey

By LCdr. Vince Lowell

I have a CH-46D background and find it hard to believe the same Navy owns the tired Phrog and the sleek, technologically advanced, C-20G Gulfstream IV. It has been my good fortune to transition from the steam gauges of the H-46 and the steamy climes of Guam to the all-glass, fully integrated cockpit of the high-speed, medium-lift C-20G, based at Andrews AFB.

Although both are logistics aircraft, the C-20G is a miraculous machine that can fly nonstop from Hawaii to the District of Columbia at 45,000 feet and 500 knots. With this kind of performance, to steal a line from Jimmy Buffett, latitude and attitude change very quickly when you climb into the cockpit and enjoy the exhilarating shove of 27,700 pounds of thrust from the twin Rolls-Royce turbofan engines.

I was a new aircraft commander in the C-20G international-overwater transport. I felt good as my sleek jet and top-notch crew zoomed toward Istanbul, Turkey, on the first mission of our detachment. Our mission was to pick up a submarine admiral and his aide, take them to Naples, Italy, and return to det homeplate in NAS Sigonella.

We checked the weather and NOTAMS and got our diplomatic clearances. To get a good idea of our fuel burn, we used the fleet numerical's great optimal-path-aircraft-routing program. We also studied the FLIP sections for the Ataturk (Istanbul), Turkey, airfield and the Italian, Greek, and Turkish airspace we would transit. The 1801 international-flight-plans form was completed to cover our day trip. None of the crew had operated from this airport, nor had anyone else in the squadron as far as I knew, so we didn't want any surprises. I had survived a tour as a loop, and I knew admirals and surprises are a volatile mixture.

Not many tactical complexities are involved when you fly logistical or VIP aircraft. However, a crew must know many mundane details to operate the aircraft in a professional, safe and expedient manner. We recognized one such detail: Where would we meet the admiral at the Ataturk field? We queried the ASCOMED and the U.S. Defense Attaché Office in Istanbul. We also called the admiral's office and had a cell-phone patch directly to his aide. The aide gave a vague idea of the pickup point—the military side of the airfield.

ASCOMED may have known something we didn't because they scheduled two hours, rather than the usual 45 to 60 minutes, for our ground turn in Istanbul. Nonetheless, the pickup point

didn't seem like a critical safety-of-flight issue. I figured we would get better info on the ground in Turkey.

We landed, cleared the runway, and requested taxi clearance to the military side of the field. We didn't know exactly where the military side was since it is not marked on the FLIP-airport diagram or in the Jeppesen publications. Nonetheless, we got taxi instructions to park at a spot near a building marked "Base Ops" on the FLIP diagram. That news seemed encouraging until we arrived at the spot, and found no military aircraft or anything to suggest we were on a military installation.

We parked and shut down, hoping to get more info from the handlers. We were relieved to find a guy in civilian clothes, whom we later learned was a USDAO Air Force sergeant who spoke English. He said we were not on the military side, and he would coordinate approval from the Turkish Armed Forces for us to taxi to the correct side. He departed, then relayed a message to us through the Turkish handler to reposition to the military side and to expect a follow-me vehicle.

We felt confident we had overcome this minor hurdle but still did not know our exact destination on the field. After restarting and calling ground control, we requested a progressive taxi to the military side. We were cleared to taxi via mike and cross runway 24. As we approached the hold-short for runway 24, in IMC conditions and with twilight approaching, we spotted two parked vehicles facing us. They were in the center of the taxiway on the other side of 24 with their headlights on. They fit my follow-me vehicle paradigm, so we taxied across 24 and followed the yellow stripe down the somewhat narrower taxiway on the other side.

Feeling good to be clear of an active runway, in darkening IMC conditions, we waited for the vehicles to turn around and lead us to our destination. Our paradigm shattered when the vehicles held their position and flashed their headlights at us. I stopped the aircraft, and my crew chief volunteered to talk to the drivers. He returned and told us a fence was around the next bend in this taxiway, and the Turks in the cars believed the opening in the fence was too narrow for our aircraft. We decided the crew chief would ask for a ride to the fence line to assess the clearance.

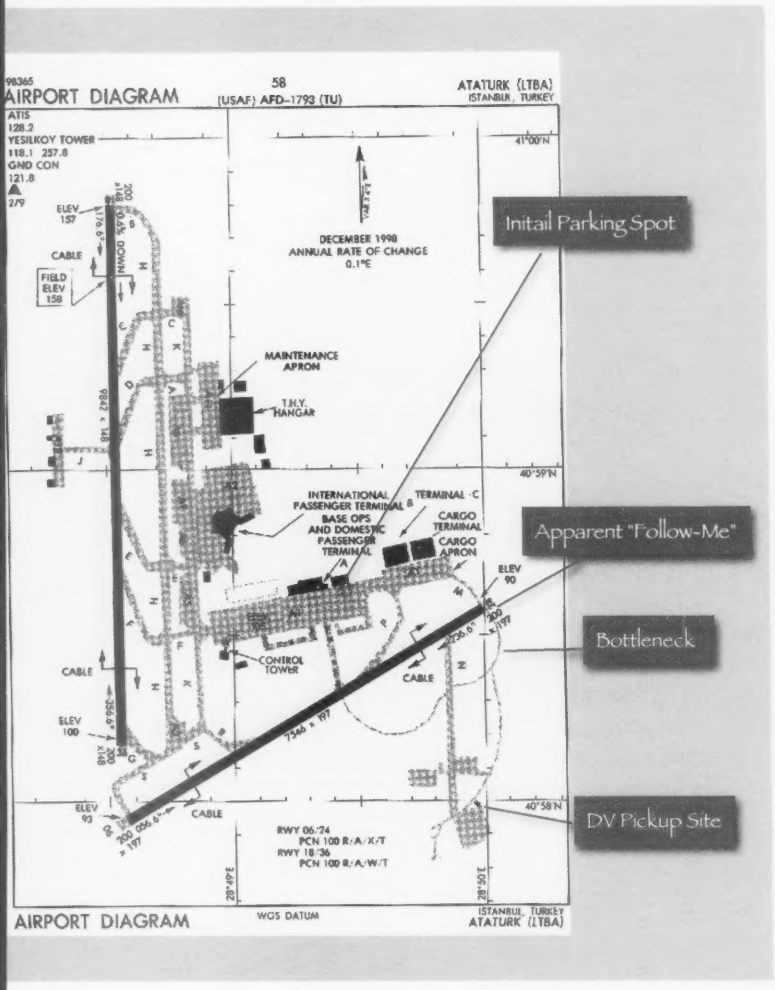
The taxiway was too narrow to make a U-turn. I later surmised, from the Turkish-military aircraft parked in the revetments, that this taxiway was for military aircraft with a short wingspan. Unfortunately, wingspan limitations were not detailed in the NOTAMS or the FLIPS. We had two not-so-delectable options: Press forward and attempt to negotiate the narrow space, or shut down. If we shut down, we would get the tow bar from our tail compartment and try to coordinate with the Turkish handler to push us back with ground clearance—on an active runway, in darkening IMC conditions, in a foreign country.

My crew chief returned and said he thought we could make it through the fence line, but not comfortably. I initially decided on the shutdown option, which presumably was the more time-consuming of the two distasteful options.

At the very moment we put this plan into action, the manager of the Turkish handler arrived on-scene and assured us we could make it through the fence line. He would provide wands for our wing-walkers. With a five-man crew, I changed my decision and opted to go forward with a wing-walker on each wing. My crew chief would direct the evolution from outside, and the two pilots would drive. The wing-walkers took position on each wing, with one small detail to note. Each wing-walker had only one lighted wand, rather than two. Our Turkish host had provided two wands, rather than four.

Just when I thought we were clear, our right wing-walker waved frantically.

The evolution proceeded smoothly as we approached the bottleneck. Just when I thought we were clear, our right wing-walker waved frantically. I was taxiing from the left seat, the only one from which the C-20G can be taxied. For a brief moment, the cockpit crew was confused. Was the signal from our wing-walker



an adrenaline-pumped thumbs up, indicating we were clear? Or, was it an emphatic signal to stop? Our aviation training, common sense, and survival instinct prevailed. We quickly stopped the aircraft, with clearance from an approaching obstacle but not much mental comfort. We were not yet in a predicament where the only direction we could go was backward.

The story ended anti-climactically. We removed the tow bar and used the handler's tow tractor to back us up slightly, reposition the nose gear, and pull us forward and through the obstacle to freedom. We continued our taxi to the military-side pickup point on the southwestern corner of the airfield. This episode delayed us 45 minutes, and the admiral seemed to understand.

My initial and biggest mistake was not to challenge my own paradigm about the vehicle I saw and interpreted to be a follow-me. My second error was allowing myself to be influenced, perhaps by expedience or pressure of the mission, to taxi forward after I had decided to push backward to extricate myself. A third error was allowing the evolution to continue without a full complement of four wands. Last, I dropped my guard a degree in a perceived lower-threat taxi evolution. I should have hashed out my taxi clearance with ground control until I fully understood my route from chocks to chocks.

Flying in the international environment is fraught with new challenges and unexpected traps. Language barriers, inadequate or incomplete information, and non-standard markings are a few of the difficulties that compound the universal aviation hazards of weather and darkness.

On the positive side, my crew exercised good crew-resource management. Introductions to CRM training usually remind us of accident statistics where the human element failed. In this situation, the skills and experience of each member of my hybrid, selected-reserve and TAR crew were brought to bear on the problem and made this non-event a learning experience. We did thorough preflight planning, briefed before the flight, and rebriefed as we faced each hurdle. Each crew member was assertive when he needed to be and was adaptable and flexible to a situation not covered in NATOPS.

As our sleek jet whistled through the Mediterranean night sky, I felt relieved to have this ordeal behind me. Challenge your paradigms, probe and challenge all clearances until they are fully understood, and insist on full sets of equipment for all aircraft movements, regardless of how routine they are.

LCdr. Lowell flies with VR-48.

Sweat the Details

It sounded like someone had fired a .22 rifle.

Photo by Cdr. Chris Buhlmann

By Lt. Brian Sinclair

We launched at midday for a seemingly uneventful tanker mission during the final weeks of COMPTUEX. It was quite cloudy, but we shot off the front end Case I. Seconds after getting airborne, we lost lock on the ship's TACAN. Fortunately, a COD had launched off the bow ahead of us, so I told my rightseater (COTAC) to watch him for a climb. I figured we would climb at the same point he did.

As we started our climb, I turned my head to the left to search for the off-going tanker, 706, at Angels 7 and heard a loud bang. It sounded like someone had fired a .22 rifle. I felt a small sting on my cheek, then suddenly, there was a faint powder-burn smell, and the radios went dead.

After I regained my composure and checked for blood, I realized the ICS also was fried. I continued to climb as I looked at the pilot's radio console, looking for signs of fire or damage. I got a visual on 706, with the skipper on board, and began to join. My rightseater was working feverishly to revive the radios. I joined and briefly looked away to fiddle with the backup function of the ICS but with no joy.

I gave 706 a package check as I cleared to the right. I wrestled with the pilot's antiquated backup radio and selected the squadron tac freq. I hailed 706, but there was no response. I asked them to shake their heads if they heard me, but the radio apparently was not transmitting. I again tried comm on guard—once again, to no avail. I moved to the acute position and signaled the skipper we were NORDO. We remained overhead the carrier while 706 coordinated an early recovery.

I asked them to shake their heads if they heard me, but the radio apparently was not transmitting.

As the section descended through the clouds, my skipper kissed off and motioned for us to join on 702, another S-3. Maneuvering around the carrier, we prepared to land and dropped our hook. I always drop the hook, then lock my harness. When I checked my harness though, I noticed that only three points were lockable. I tried several times but never got a solid fourth-point response. I looked at my Koch fitting and saw it was not attached to my parachute. I finally put two and two together and realized the loud sound I'd heard on climbout was my SEAWARS blowing. We safed our seats and made the call to divert.

I selected guard on the backup radio and transmitted our intentions in the blind, with no response. Fortunately, my quick-thinking COTAC relayed our intentions to 702 on guard, over his PRC-90. When 702 responded on guard, I realized my backup radio worked, but only in the receive mode. Our comms now were a bizarre CRM drill. He would transmit, then I would listen for the response and yell it to to him over the cockpit noise.

We started a slow section climb through nasty weather and headed for Roosevelt Roads. At Angels 11, I had to maintain parade formation for 20 minutes, as the rain and clouds created a thick, bright-white haze between my lead and me.

The COTAC put Roosevelt Roads in the GPS that we used in place of our TACAN. About 30 miles out, 702 gave me the signal to drop my hook. I dropped the hook and moved acute, so they visually could inspect its position. We proceeded through the checklists and talked about the possibility of a hook skip on a wet runway with carrier-pressurized tires.

As I broke out the runway, I calmly thought the drill almost was over. We were shooting a PAR to runway 25. GCA dropped the section off high—I mean, real high and fast. As lead dropped me off, the expression on his face seemed to say, "Sorry dude, good luck."

I went to idle and started to stand on the DLC, dropping the nose to lose altitude. I suddenly had strange flashbacks to PAs in Kingsville. I reefed the nose at the right moment, and we touched down just before the gear. Observers later asked me if I was flying a dual-engine-flameout approach—kind of sporty, I thought.

With a gentle tug, my fun finally was over—safe on deck. I assumed the day's events had earned us a night on the beach at the Conquistador. No such luck. The handlers turned around my jet in no time flat, so we headed back to the CV and made it on deck in time for mid-rats.

Postflight inspection revealed that electrostatic discharge from the canopy had fried the radios because of a shortage of static wicks on the aircraft.

Always check your PRC before walking; you may need it, even if you still are in the jet.

Lt. Sinclair flies with VS-31.

It Sounds Good to Me

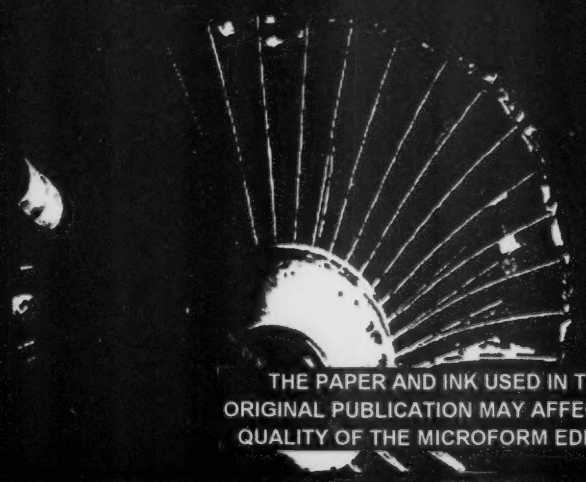
By Lt. Charles E. Garrett

For the past eight months, our squadron had been preparing to support Operation Southern Watch. We trained to the OSW special instructions (SPINS) and the tactics we expected to use. As a cruise-experienced JO, and our combat search and rescue subject-matter expert, I gave many lectures on CSAR, SERE, and divert procedures.

Before we arrived on station, the events of Sept. 11 changed everything. We scrambled for information on our new area of operations until a comprehensive set of SPINS for Afghanistan were published. All of our initial SPINS questions had been answered when we began strikes into Afghanistan. However, all divert airfields were listed as "last resort only," most likely because no one had proved them feasible.

In our fifth week of sustained combat operations, I was scheduled as Dash 2 for a section night strike, deep into northeast Afghanistan. The weather was great, and we had KC-10 tanker

The next thing I saw was a little too much closure, a little but not enough take-up reel, a lot of fuel spray, then silence.



support for the six-hour mission. The only thing missing was a full moon. On start-up, I had a repeat INS-alignment problem that we solved by reconnecting a SINS cable a few times. At our rendezvous, my lead was plagued with a short in his mask and was intermittently NORDO. We decided to continue the mission, because this problem only was intermittent (it sounded good to me).

After pre-mission tanking, we checked in with the on station AWACS, but our controller instructed us to return to the tanker and await further instructions. My lead had problems answering the call and passed me the lead. I took the flight to the tanker. After we got gas, it was my lead's turn to tank.

The next thing I saw was a little too much closure, a little but not enough take-up reel, a lot of fuel spray, then silence. I asked, "Do you still have a probe?" Silence followed.

"How are your engines? What's your state?" The silence continued.

"Do you still have a probe?"

Finally, he answered, "No, I don't. Let's divert. My state is 7.5."

We pointed toward our divert of Jacobabad, Pakistan.

I knew the name of our divert, and I had its coordinates in my system, but that's all I knew. Since I'd heard planes had been shot at on their approach to Jacobabad, it made no sense sending a good plane into a place like that. I did not know how long my lead would be on deck.

My plan was to divert as a section, escort my probeless lead to a safe landing, return to our tanker, refuel, and return for the next recovery (it sounded good to me). As the controller processed my request, my wingman jiggled his cords and finally blurted out, "What about my NORDO? I think you should come with me."

I thought time was critical, and I made an instant decision. Somewhere in my helmet bag was the divert number, TACAN frequency, tower frequency, runaways and lengths. After some digging, and a few radio calls, I finally had all the info. We switched to tower, and, quite unexpectedly, an American voice answered, telling us to report "five miles out."

My plan was to remain high, with our lights off, to avoid small-arms fire. We would take separation on final, using our night-vision goggles, maintain sight of each other; and find the unlit runway. I briefed we'd remove our goggles in close and use our taxi light only if needed. We agreed.

Chalk it up to good training, but I at least remembered to call for feet-dry checks and to see if our anti-skid was on. Our plan worked great, right up until I took off the goggles. Apparently, there were no runway lights because I saw nothing without goggles. I did see the VASI and decided I could land beyond it. I floated a little, and I saw concrete immediately before touchdown.

The feeling of "Cool, I didn't get shot down" was interrupted by a flashing light in the gear handle and the landing gear warning-tone indications of a planing-link failure.

The aircraft tracked straight ahead, so I continued the rollout. My aircraft veered toward the right edge of the runway as I passed 100 knots. I knew I was in trouble when I hit the stops on the left rudder and still couldn't stop my right drift. I yelled something on the radio—I'll never know exactly what I said, but it made my wingman waveoff behind me. I went through the immediate-action items for loss of directional control on ground, while feeling like I was sliding or hydroplaning, instead of rolling. My hand twice wandered toward the ejection handle because it appeared the aircraft might veer sideways enough to roll. I came to rest 8,500 feet down the runway and far enough right for my wingman to land behind me.

I now was a stranger in a strange land. I told tower I was shutting down and getting out. The first person I met was a member of the Air Force on a four-wheeler wearing NVGs and carrying a sniper rifle. He gave me a cigarette and told me a green flare meant the airfield was under attack. He also said I should run toward the command post yelling "Betty Grable." He then drove away, leaving me in the dark.

I tried to calm down as Air Force personnel decided how to de-arm my aircraft (did I mention that my aircraft was loaded with three GBU-12s?) and how to clear my aircraft from the runway. I then watched—stunned—as my wingman, now refueled (and the only reason I was here in the first place), left me and flew back to

the ship to enjoy pizza night. As he taxied by, my flightsuit dropped to my knees, and, for him at least, the moon rose over Pakistan.

The next afternoon, a squadron rescue team arrived on an S-3 and fixed the aircraft in record time. We found the right main-connecting link had collapsed and bent on touchdown, which caused the right mainmount to toe-in, giving me the planing-link indications. The toe-in caused the veer and became progressively worse as I slowed. By the time I had stopped, the right wheel was toed-in about 15 degrees and canted-in about five degrees from vertical. The aircraft sat with an obvious list, and the tire was bald (send me to the grog bowl).

To top off this story, when I was ready to get back to mom, I started up, but, remember that INS problem I mentioned at the beginning of the article? Well, the INS was bad, and couldn't get a ground alignment. Not wanting to return at night without an INS alignment, I remained another night with my Air Force brethren until our carrier's helo guys delivered a new INS.

When planning for contingency operations in foreign countries, make sure you have all the divert information and keep it accessible. Nothing is worse than trying to remember where you put the divert info while flying at night to an unlit and unfamiliar runway. In this instance, the added angst of diverting to a field where hostile fire might be encountered required additional planning before flight to cover airborne decisions and ways to minimize enemy-fire risk.

When writing aircraft gripes, make sure you factor-in divert considerations. If you don't want to divert with it, down it.

You usually have enough time to take a step back when the unexpected occurs and to use all the resources available.

I was quite proud to be a member of an organization that is so flexible.

Lt. Garrett is assigned to the Weapons Test Squadron, NAS China Lake. He flew with VFA-22 at the time of the incident.

The author recognizes he did not follow NATOPS, which calls for immediately and completely executing the emergency procedures for loss of directional control on touchdown. However, he wanted to share his experience. Once you recognize a planing-link failure on touchdown, you must complete all emergency procedures. Loss of directional control happens suddenly and without warning.

An FA-18 Class A mishap shows how this very situation can turn out much worse. In that mishap, the pilot acted just as the author did. At approximately 100 knots, the jet swerved 60 degrees and departed the runway. Follow NATOPS completely.—Lt. Matt Bartel, FA-18 analyst, Naval Safety Center.

Mishap-Free Milestones

HS-5	8 years	(25,875 hours)
VAW-115	17 years	(36,000 hours)
HMM-268	16 years	(80,000 hours)
VMFA-27	16 years	
VAW-117	25 years	(53,000 hours)
VFA-136	9 years	(39,138 hours)

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The next afternoon, a squadron rescue team arrived on an S-3 and fixed the aircraft in record time. We found the right main-connecting link had collapsed and bent on touchdown, which caused the right mainmount to toe-in, giving me the planing-link indications. The toe-in caused the veer and became progressively worse as I slowed. By the time I had stopped, the right wheel was toed-in about 15 degrees and canted-in about five degrees from vertical. The aircraft sat with an obvious list, and the tire was bald (send me to the grog bowl).

To top off this story, when I was ready to get back to mom, I started up, but, remember that INS problem I mentioned at the beginning of the article? Well, the INS was bad, and couldn't get a ground alignment. Not wanting to return at night without an INS alignment, I remained another night with my Air Force brethren until our carrier's helo guys delivered a new INS.

When planning for contingency operations in foreign countries, make sure you have all the divert information and keep it accessible. Nothing is worse than trying to remember where you put the divert info while flying at night to an unlit and unfamiliar runway. In this instance, the added angst of diverting to a field where hostile fire might be encountered required additional planning before flight to cover airborne decisions and ways to minimize enemy-fire risk.

When writing aircraft gripes, make sure you factor-in divert considerations. If you don't want to divert with it, down it.

You usually have enough time to take a step back when the unexpected occurs and to use all the resources available.

I was quite proud to be a member of an organization that is so flexible.

Lt. Garrett is assigned to the Weapons Test Squadron, NAS China Lake. He flew with VFA-22 at the time of the incident.

The author recognizes he did not follow NATOPS, which calls for immediately and completely executing the emergency procedures for loss of directional control on touchdown. However, he wanted to share his experience. Once you recognize a planing-link failure on touchdown, you must complete all emergency procedures. Loss of directional control happens suddenly and without warning.

An FA-18 Class A mishap shows how this very situation can turn out much worse. In that mishap, the pilot acted just as the author did. At approximately 100 knots, the jet swerved 60 degrees and departed the runway. Follow NATOPS completely.—Lt. Matt Bartel, FA-18 analyst, Naval Safety Center.

Mishap-Free Milestones

HS-5	8 years	(25,875 hours)
VAW-115	17 years	(36,000 hours)
HMM-268	16 years	(80,000 hours)
VMFA-27	16 years	
VAW-117	25 years	(53,000 hours)
VFA-136	9 years	(39,138 hours)

Ready Room Gouge

The decision to execute a 180-degree turn has saved many a pilot and airplane,

but it was made before reaching the point of no return.

Photo by PH2 John Sullivan. Modified.

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